Film Processing Equipment

Air Bearings

Research and Development

Approved For Release 2005/05/20 : CIA-RDP78B04770A001700020019-3

STAT

[redacted]

FILM PROCESSING EQUIPMENT

AIR BEARINGS

RESEARCH AND DEVELOPMENT

[redacted] *is a Canadian company with its head office and plant in Toronto, Ontario. The company was formed in 1961 as a research, development and manufacturing company in the photographic equipment, strip materials handling and associated fields.* STAT

Being located in Toronto, the company is strategically situated in the major engineering and industrial centre of Canada. Availability of all types of materials is second to none and personnel and equipment of the highest specialization are available.

CONTENTS

105mm MICROFILM PROCESSOR

GENERAL

105mm black and white negative microfilm processor for high production of "microfiche" for filing systems. Highest quality of film imagery and consistent archival quality.

ACCESSORIES

- Replenisher
- Refrigeration temperature control

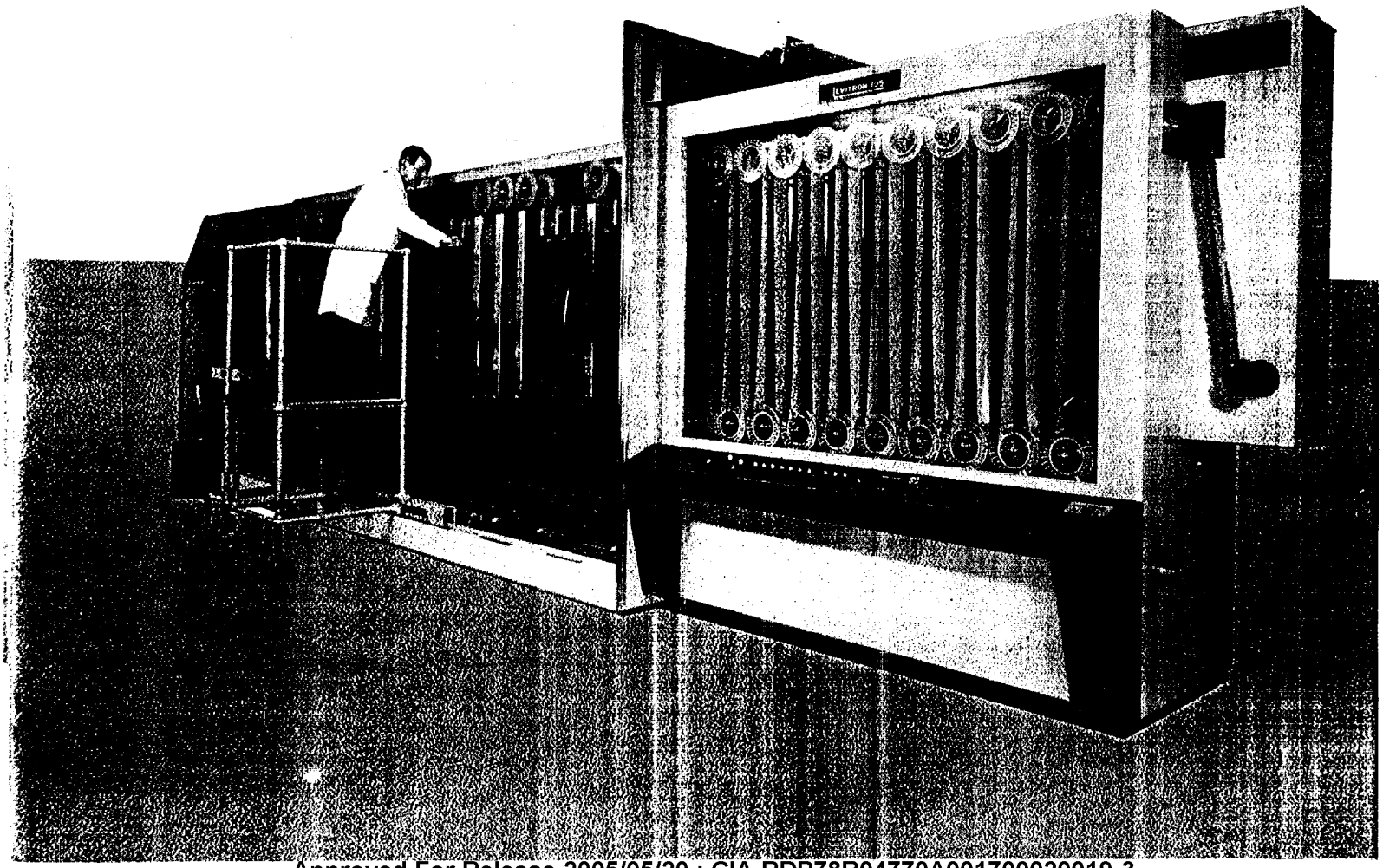
SPECIFICATIONS

Film speed	2-50 F.P.M.
Length	35 ft.
Width	6 ft.
Height	8 ft.
Weight	3,800 lbs.
Wash water connection	¾"
Drain connection	3"

Power: 220 VAC, 60 cy, 75 amp.

EFFECTIVE TANK CAPACITIES

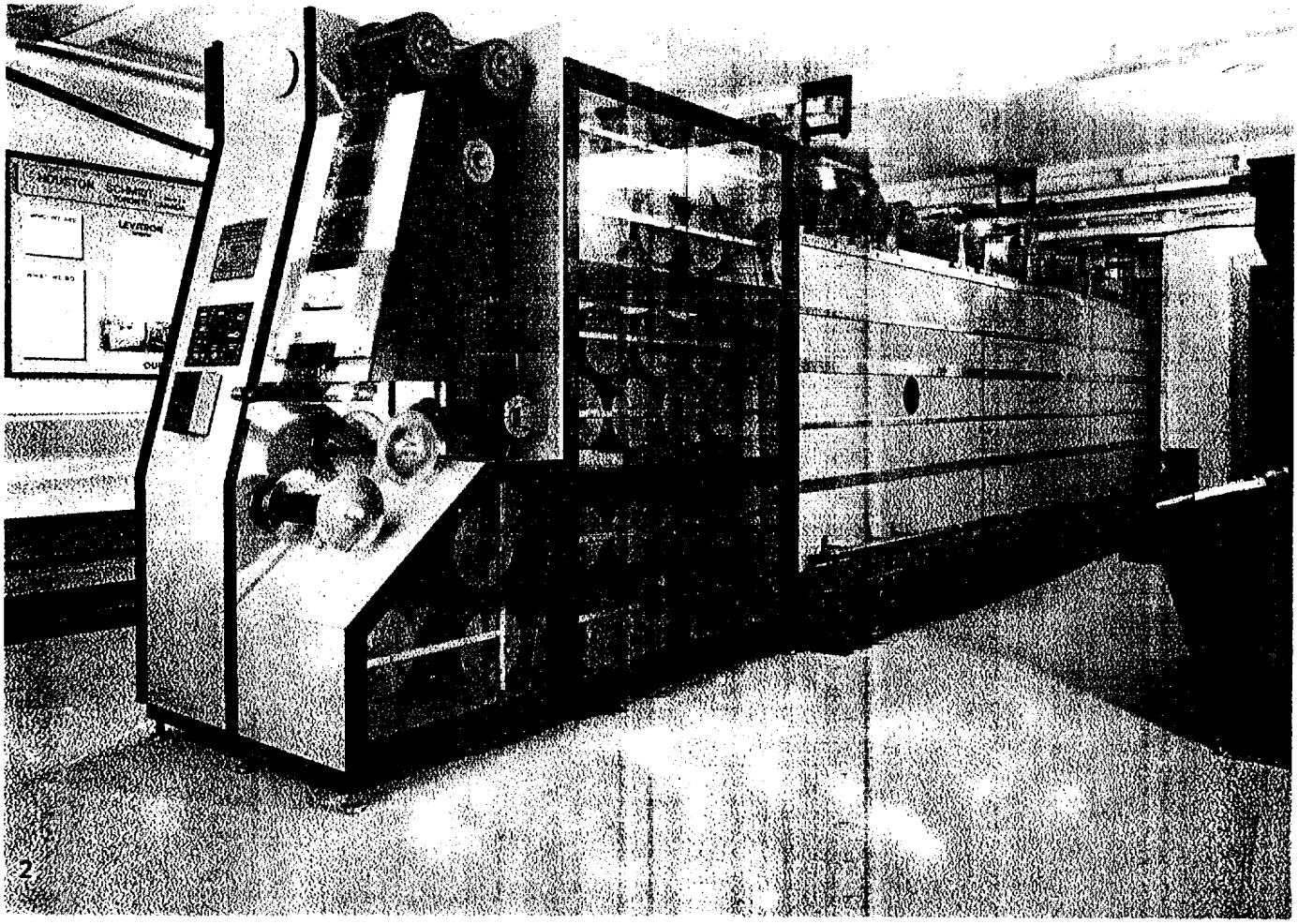
# 1 - Developer	65 Gallons
# 2 - Stop	15 Gallons
# 3 - Fix	80 Gallons
# 4 - Wash	15 Gallons
# 5 - Hypo Clear	15 Gallons
# 6 - Wash	37 Gallons
# 7 - Wash	37 Gallons



LEVITRON 70mm - 9.5" ADJUSTABLE COLOUR

GENERAL

70mm to 9½" multi-tank adjustable colour film processor for the processing of high quality aerial reconnaissance film. This unit, built to customer's specifications, utilizes the patented LEVITRON air and liquid bearing principle.



PROCESSOR

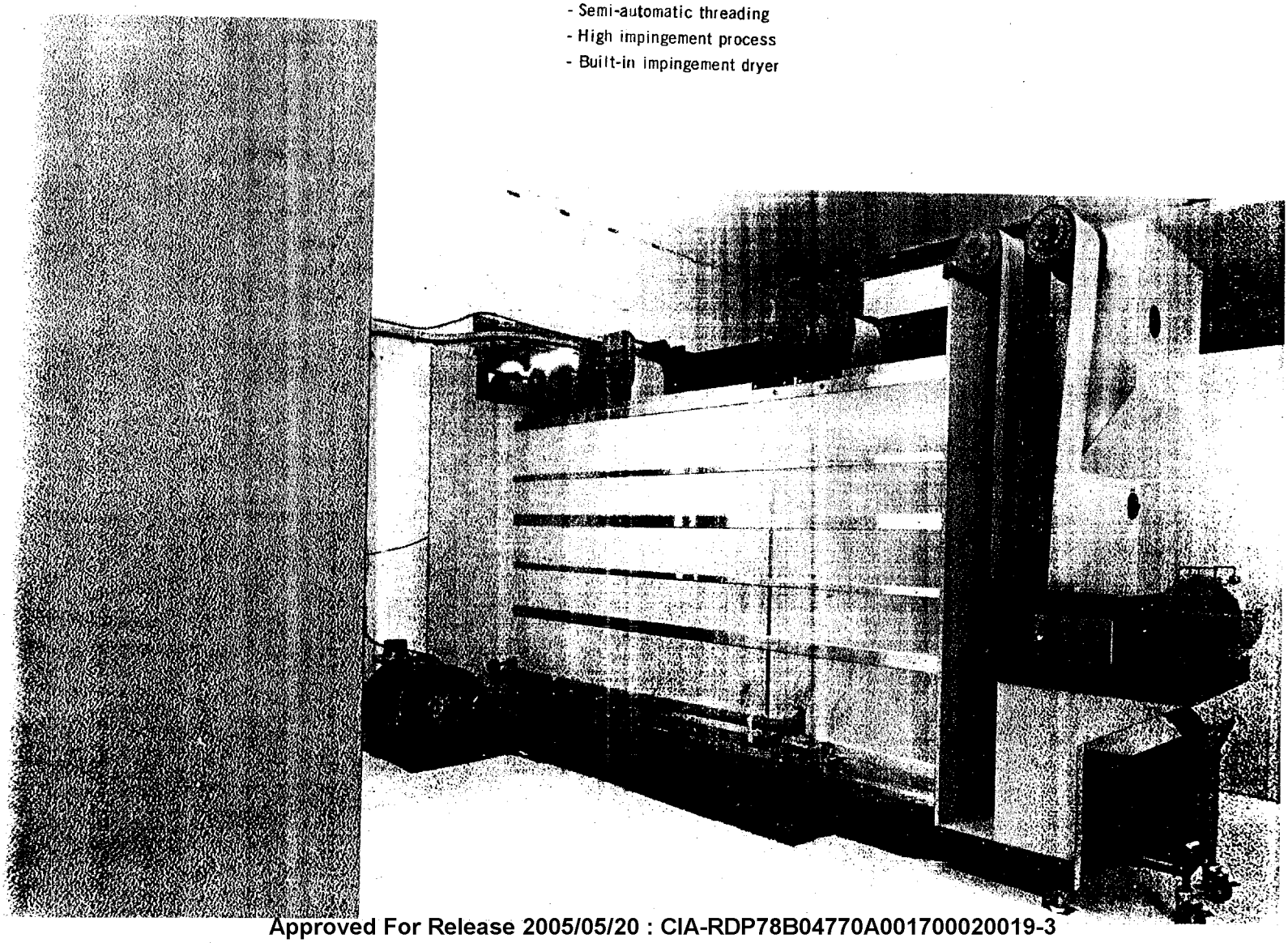
SPECIFICATIONS

Remote controlled	19 tank system
Film sizes	70mm up to 9½"
Speed range	20 f.p.m. transport speed
	10 f.p.m. process speed
Emulsions	Ansco 75 F Colour
	Eastman Kodak ME-4
	Eastman Kodak E2/E-3
Film footage in processor	450 ft.

Temp. control range	60°F to 115°F
Length	47 ft.
Width	5 ft.
Height	9 ft.
Electrical supply	380 amps, 3 phase, 208 volts
Total tank capacity	1490 U.S. gallons
Total tank weight filled	12,400 pounds

SPECIAL FEATURES

- LEVITRON air and liquid bearing
- Semi-automatic threading
- High impingement process
- Built-in impingement dryer



16-35-70mm LEVITRON MICROFILM PROCESSORS

GENERAL

Air and liquid bearings are used in the LEVITRON in place of the many rollers which guide film through conventional processors. These bearings are stationary cylinders through the sides of which chemical solutions, water or air are ejected at controlled velocities, lifting the film away from the bearing and thus preventing any possibility of film scratch. The film never makes physical contact with the machine during processing.

SPECIFICATIONS

Magazines (2 furnished)	400 feet
Film speed	2 to 30 F.P.M.
Length	83"
Width	19"
Height	63"
Weight	800 lbs.
Wash water connection	½"
Tap water connection	½"
Maximum water useage	4½ G.P.M.
Drain connection	2"

Power: 220 Volts, 60 cycle, split single phase, 40 amps

EFFECTIVE TANK CAPACITIES

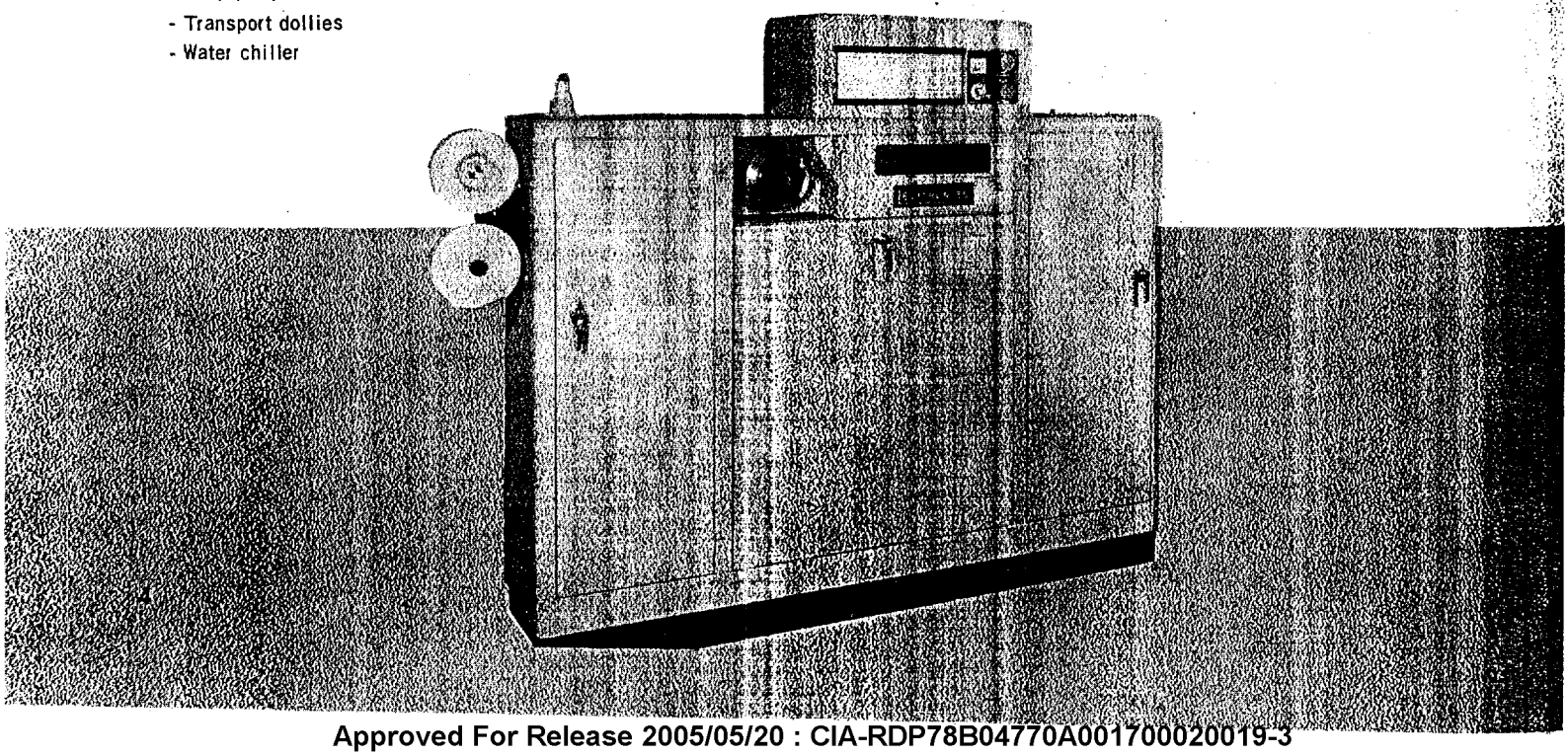
Developer	10-7/8 U.S. Gals.
Stop	3-1/2 U.S. Gals.
Hypo Fix	10-7/8 U.S. Gals.
Wash #1	3-1/2 U.S. Gals.
Hypo Clear	3-1/2 U.S. Gals.
Final Wash	10-7/8 U.S. Gals.

OPTIONAL ACCESSORIES

- Replenisher set for developer and fix
- Photo Flow Tank (between final wash and air knife)
- Jet back remover for microfilm models
- Sump pump for drain
- Transport dollies
- Water chiller

SPECIAL FEATURES

- Daylight operation
- Automatic threading
- High impingement process
- Built-in impingement dryer



DENTAL X-RAY CHIP PROCESSOR

GENERAL

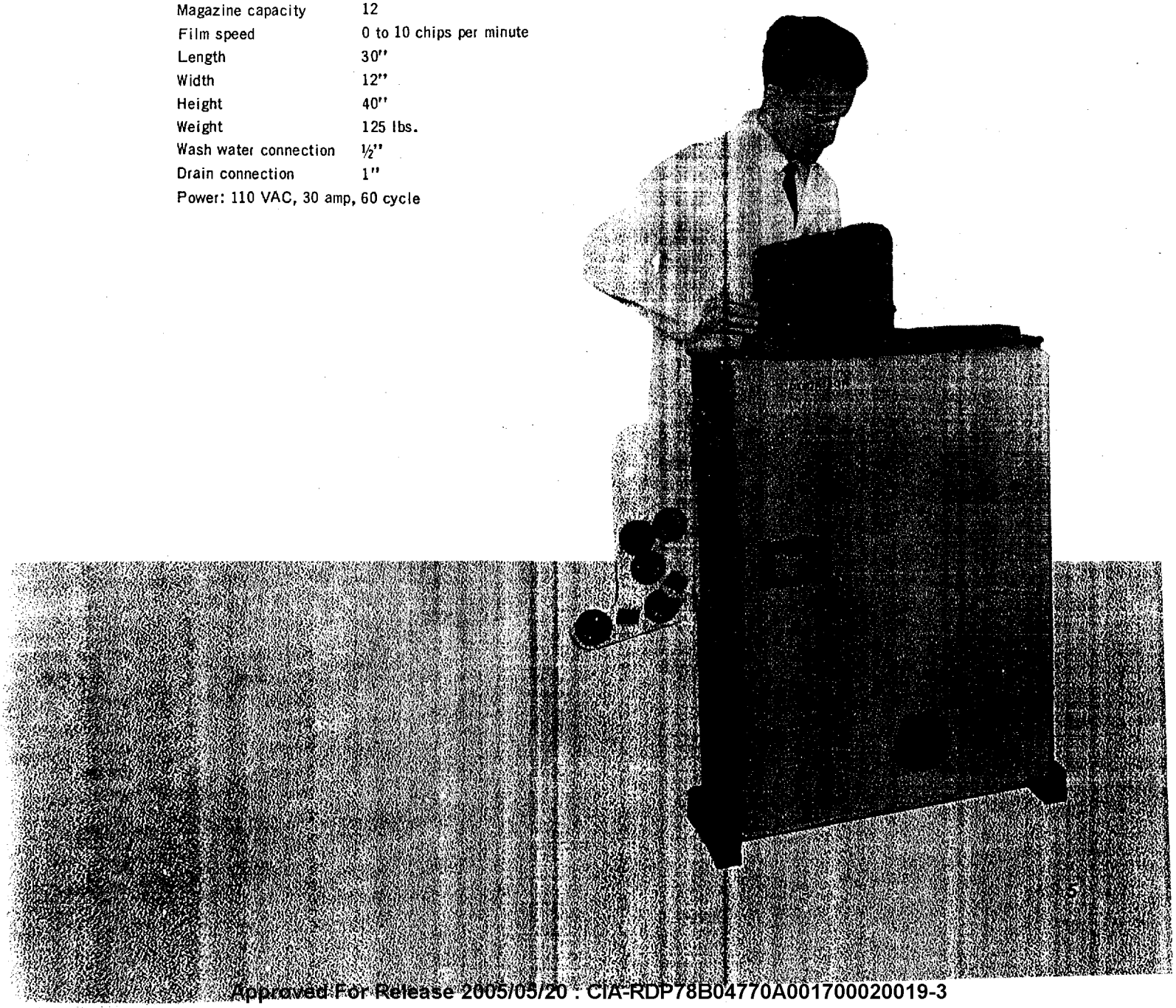
The dental unit is designed to eliminate the need for dark room facilities and to automatically process dental x-ray films.

The unit is designed to blend in with typical dental office equipment. Multiple use by several dentists can be accomplished by the use of identifying colour chip holders. The machine is compact and easily operated.

SPECIFICATIONS

Magazine capacity	12
Film speed	0 to 10 chips per minute
Length	30"
Width	12"
Height	40"
Weight	125 lbs.
Wash water connection	½"
Drain connection	1"

Power: 110 VAC, 30 amp, 60 cycle



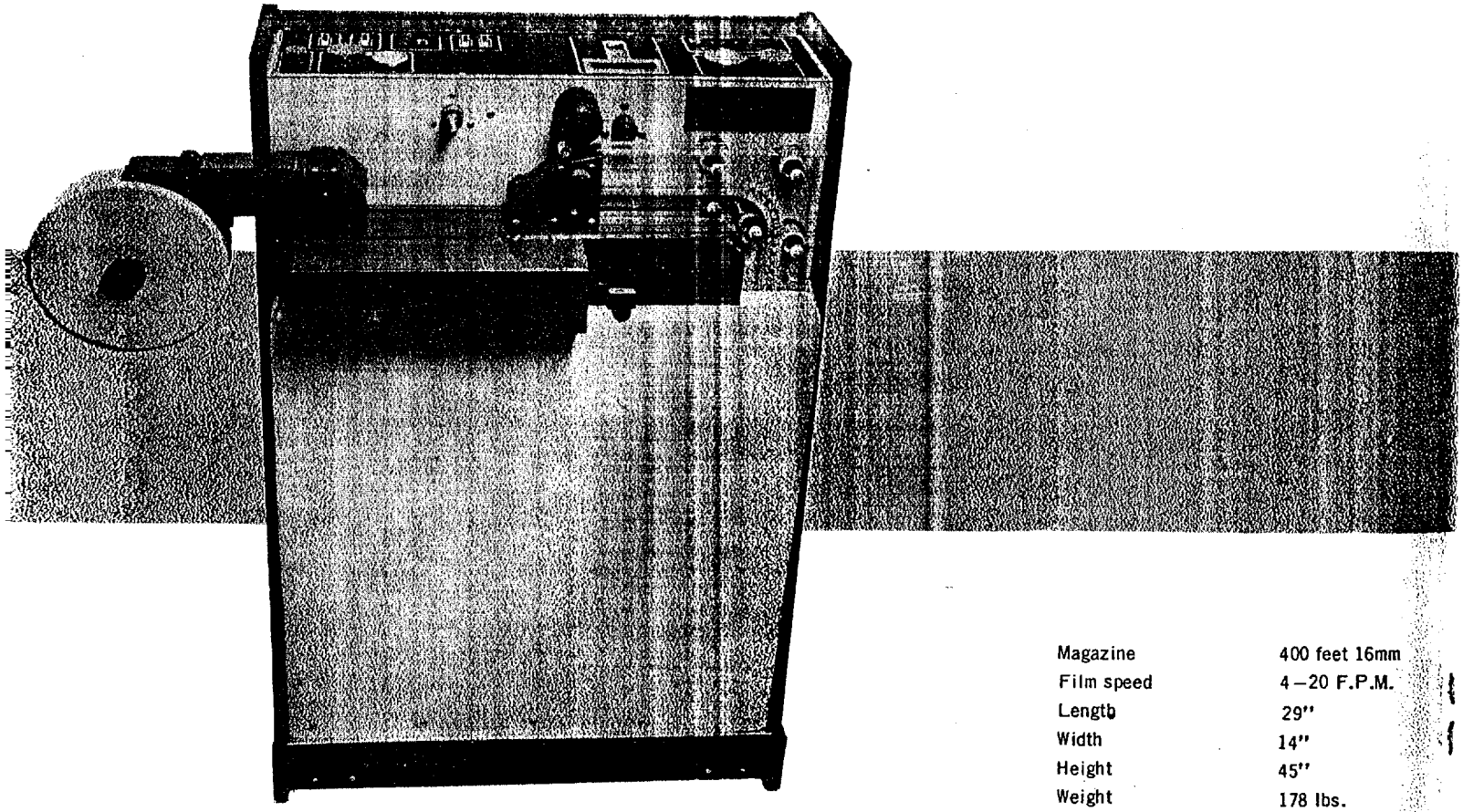
SUPER LEVITRON

SPECIAL FEATURES

- Daylight operation
- Automatic temperature control
- High Impingement Process
- Self Threading
- Compact, portable – suitable for mobile operation
- Built-in impingement dryer
- 3 tank process – 1½ gallons per tank
- Thru path footage 18 ft.

GENERAL

The SUPER LEVITRON incorporates [redacted] STAT
[redacted] STAT
"no touch" feature of film handling. The system uses air and liquid cushions for transporting and moving the film throughout the process sequence.



SPECIFICATIONS

Magazine	400 feet 16mm
Film speed	4 – 20 F.P.M.
Length	29"
Width	14"
Height	45"
Weight	178 lbs.
Wash water connection	½"
Tap water connection	½"
Maximum water useage	3 G.P.M.
Drain connection	1½"

Power: 30 amp. 110 VAC - 60 cycle

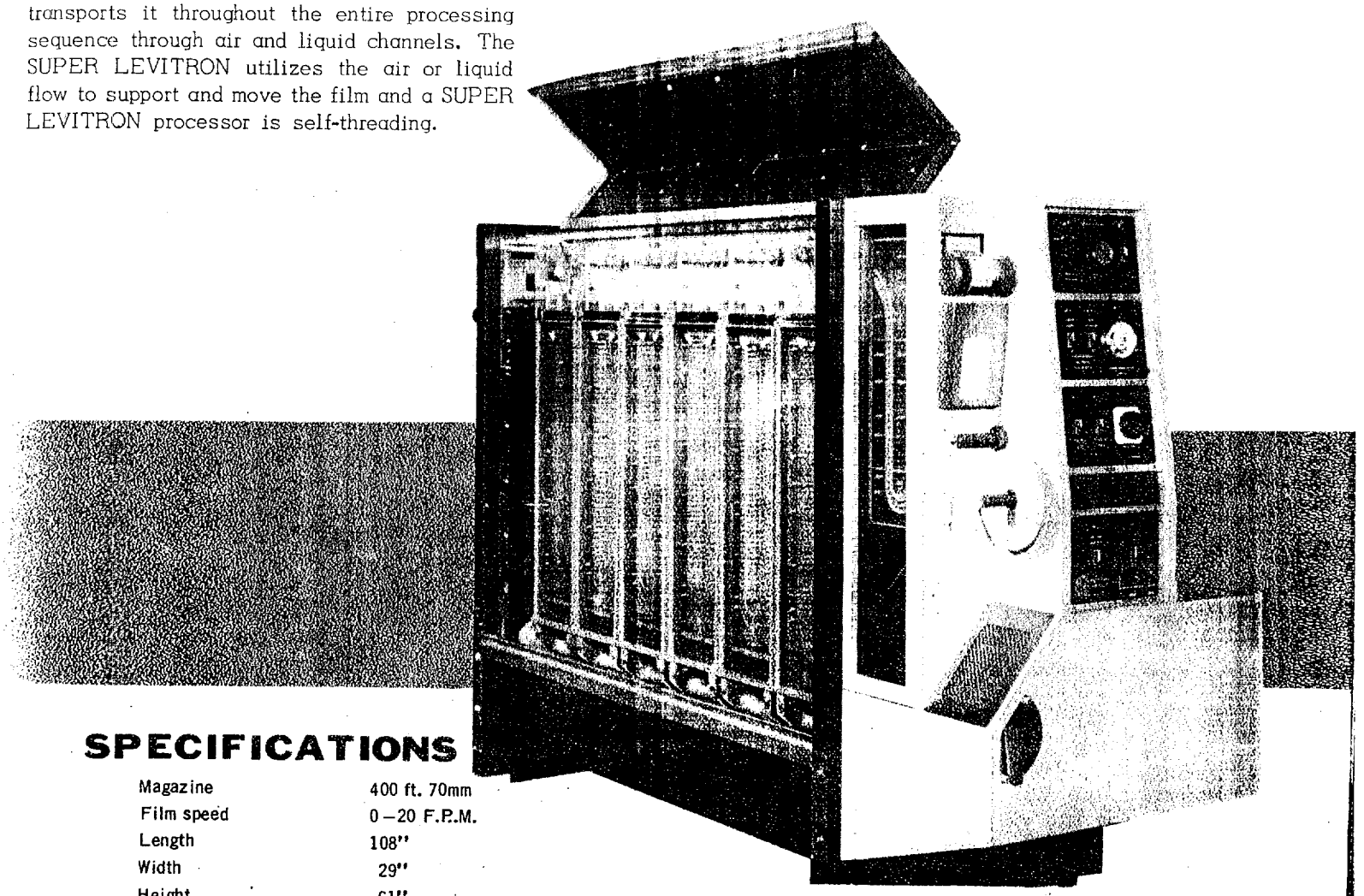
70mm SUPER LEVITRON

STAT

The 70mm SUPER LEVITRON incorporates [redacted] "no touch" feature of film handling. The system uses air and liquid cushions for transporting and moving the film throughout the process sequence. During this time the film is floating freely while travelling through liquid processing and drying chambers. With this method of handling the SUPER LEVITRON supports the film on both sides and transports it throughout the entire processing sequence through air and liquid channels. The SUPER LEVITRON utilizes the air or liquid flow to support and move the film and a SUPER LEVITRON processor is self-threading.

SPECIAL FEATURES

- Daylight operation
- Automatic temperature control
- High impingement process
- Self threading
- Built in impingement dryer



SPECIFICATIONS

Magazine	400 ft. 70mm
Film speed	0–20 F.P.M.
Length	108"
Width	29"
Height	61"
Weight	1,100 lbs.
Wash water connection	½"
Tap water connection	½"
Maximum water useage	3 G.P.M.
Drain connection	1½"
Effective tank capacity	all tanks 6 gallons

Power: 220 VAC, 60 cycle, split single phase, 40 amp

16mm LEVITRON REVERSAL

GENERAL

Air and liquid bearings are used in the LEVITRON in place of the many rollers which guide film through conventional processors. These bearings are stationary cylinders through the sides of which chemical solutions, water or air are ejected at controlled velocities, lifting the film away from the bearing and thus preventing any possibility of film scratch. The film never makes physical contact with the machine during processing.

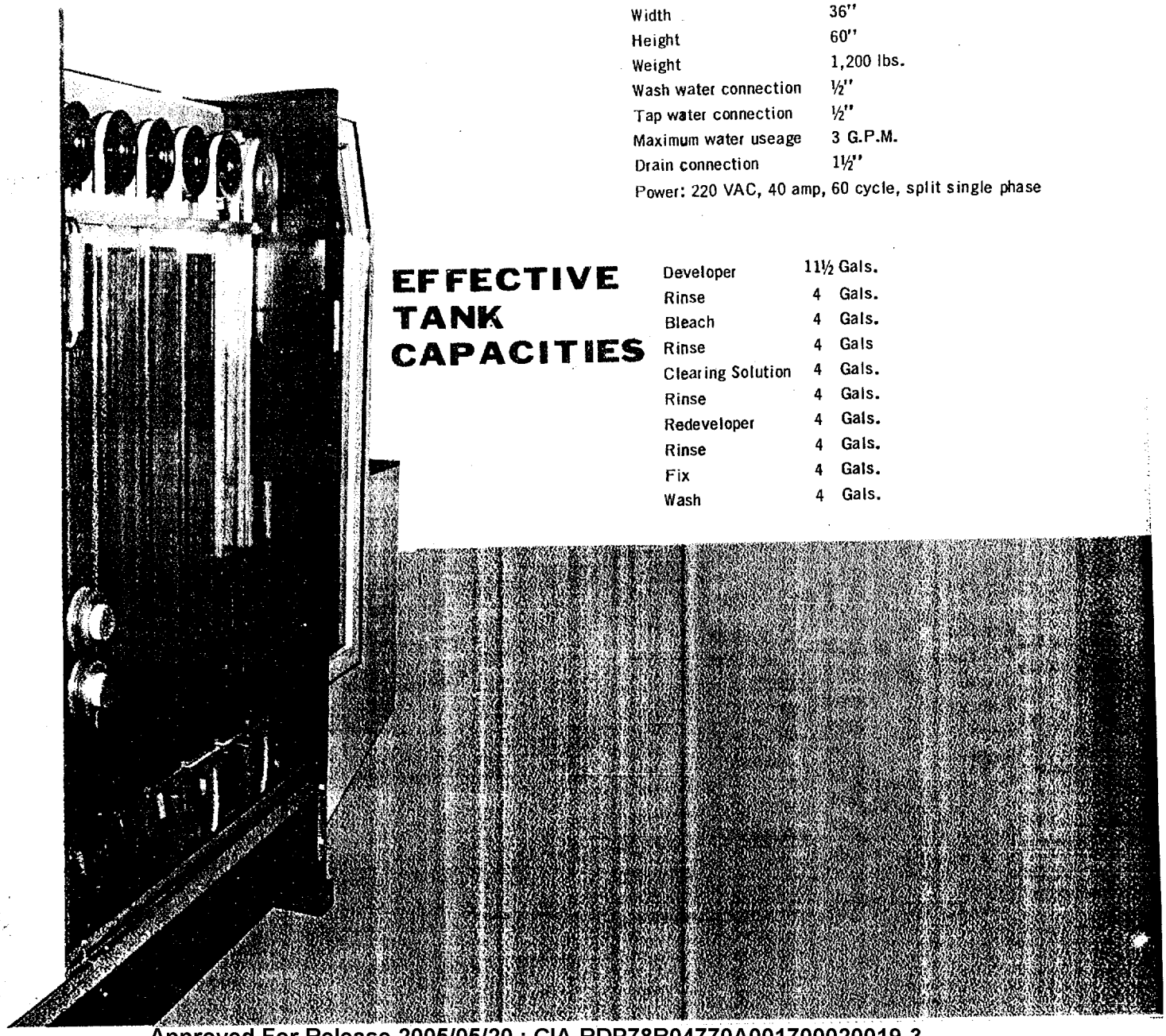
SPECIFICATIONS

Magazine	400 feet
Film speed	0 to 20 F.P.M.
Length	96"
Width	36"
Height	60"
Weight	1,200 lbs.
Wash water connection	½"
Tap water connection	½"
Maximum water useage	3 G.P.M.
Drain connection	1½"

Power: 220 VAC, 40 amp, 60 cycle, split single phase

EFFECTIVE TANK CAPACITIES

Developer	11½ Gals.
Rinse	4 Gals.
Bleach	4 Gals.
Rinse	4 Gals
Clearing Solution	4 Gals.
Rinse	4 Gals.
Redeveloper	4 Gals.
Rinse	4 Gals.
Fix	4 Gals.
Wash	4 Gals.



AUTOMATIC 4" x 5" FILM PROCESSOR

GENERAL

The machine is designed to process black and white 4"x5" film chips with a speed of 1 to 10 frames per minute in a continuous process sequence utilizing various conventional chemical sequences. The 4"x5" film chip is inserted into a film slide which, when loaded into the magazine, is automatically transported from dry to dry without mechanical contact.

SPECIFICATIONS

Magazines	3 furnished, 36 slide capacity each
Film speed	1–10 frames per minute
Length	88"
Width	32"
Height	63"
Weight	1,100 lbs.
Wash water connection	½"
Max. water useage	5 G.P.M.
Drain connection	1½"

Power: 220 VAC, 60 cycle, split single phase, 40 amps

EFFECTIVE TANK CAPACITIES

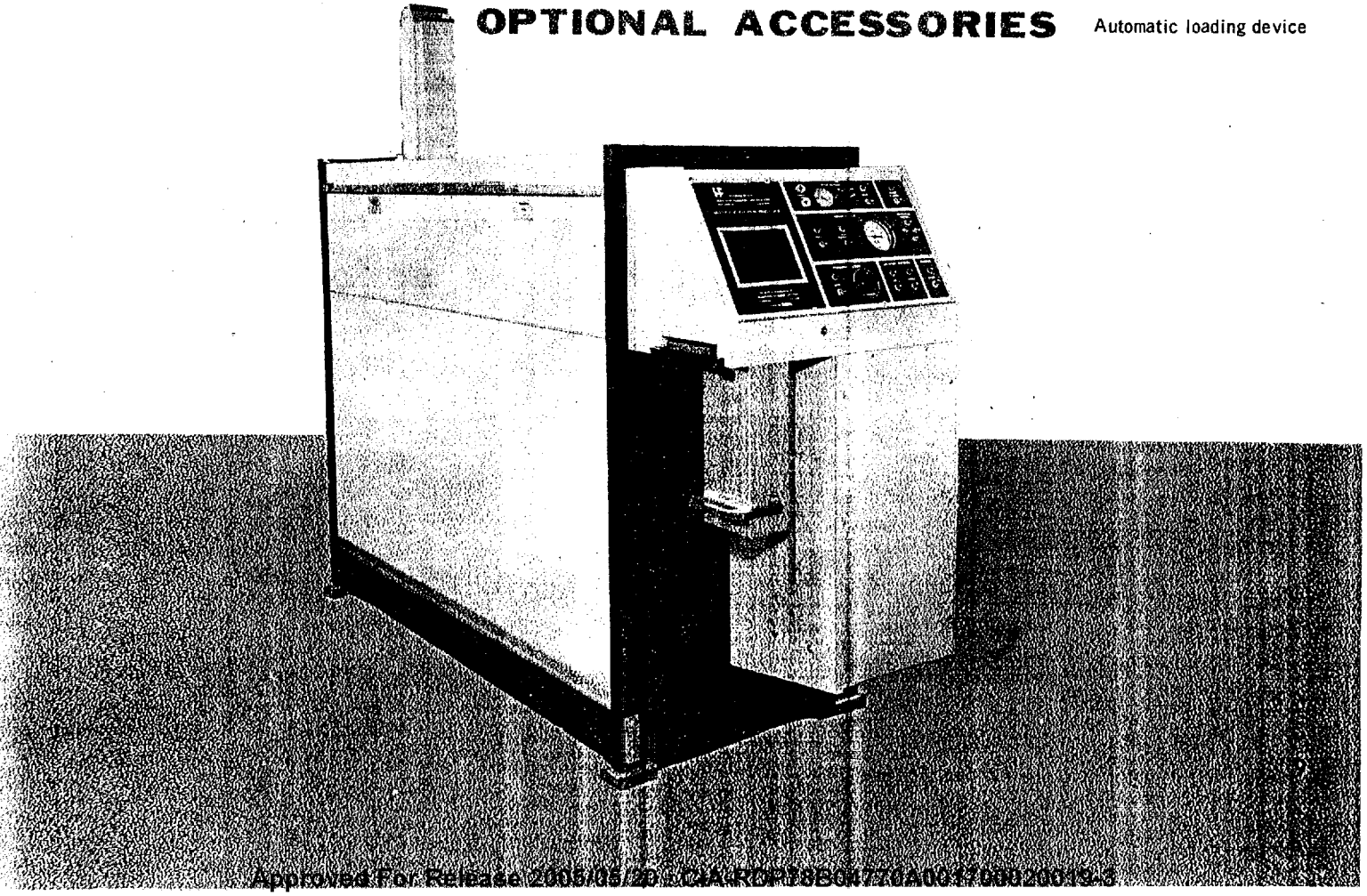
	Liquid U.S. Gals.	Film Path Inches
Developer tank	18½	140
Stop bath tank	8½	76
Fix tank	17	135
Hypo Eliminator tank	8½	76
Wash tank	17	135

SPECIAL FEATURES

- Daylight operation
- High impingement process
- Built-in impingement dryer
- Automatic feed

OPTIONAL ACCESSORIES

Automatic loading device



70mm SEPRATRON

STAT

GENERAL

[redacted]SEPRATRON is built around a straight through film path, as opposed to the generally accepted method of transporting film in a serpentine path. The SEPRATRON principle is based on a system of applied pressure balance. Process liquids in processing chambers and air in air gates and dryer section are jetted on to a horizontally transported film strip in such a manner as to totally support, process and transport the film without mechanical contact, and at the same time avoid chemical inter-mix.

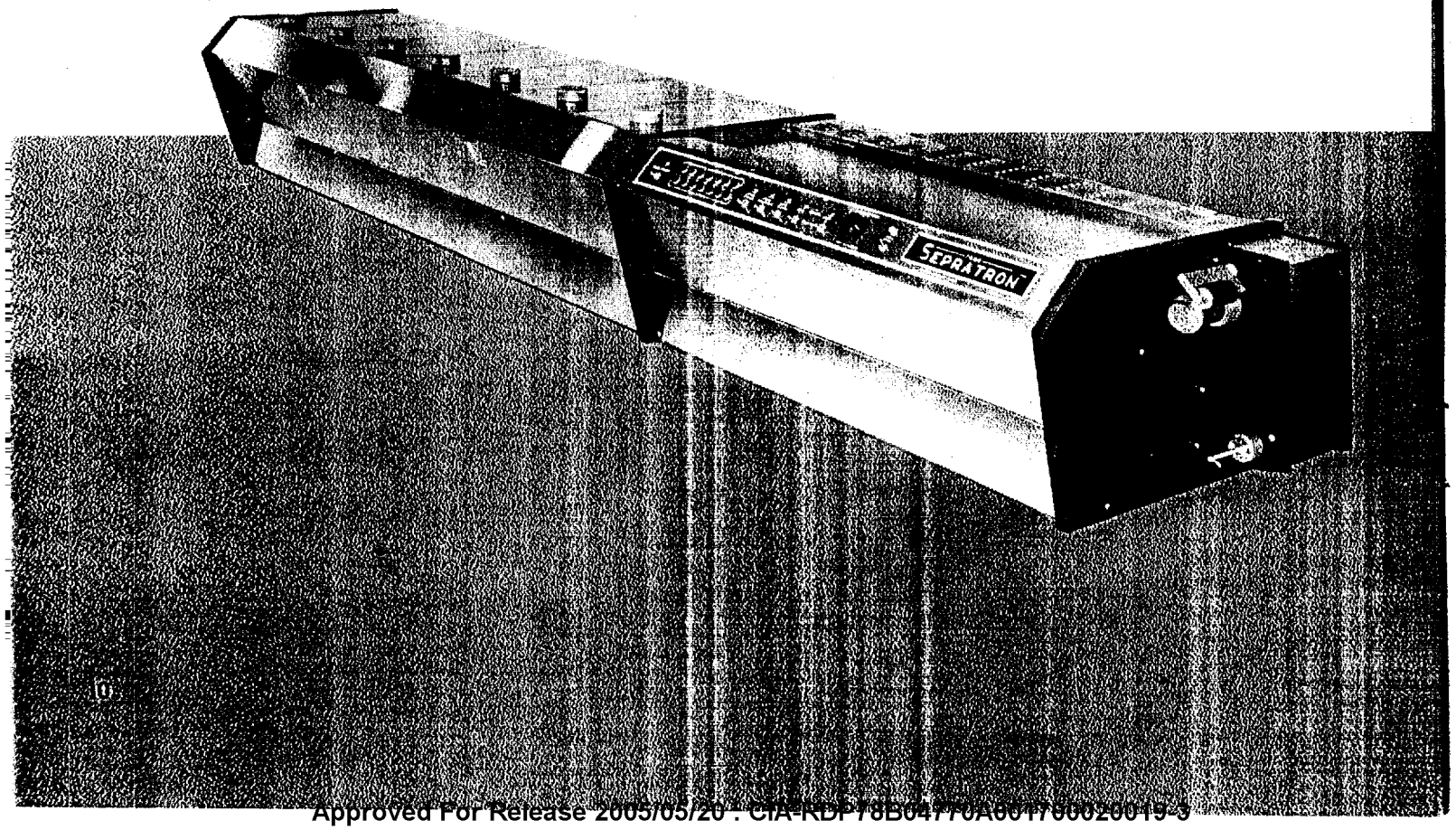
SPECIFICATIONS

Magazine	400 ft.
Film speed	35 F.P.M.
Length	150"
Width	25½"
Height	18½"
Weight	600 lbs.
Wash water connection	½"
Tap water connection	½"

Power: 35 amps, 220 VAC, 60 cycle, split single phase

SPECIAL FEATURES

- Rapid access
- Daylight operation
- Automatic temperature control
- Immersion high impingement flow
- Portable – suitable for mobile and lab installation
- Built in impingement dryer
- Modular 7 tank process
- 256 oz. per tank
- Replenisher attachment optional
- 70mm (16/35 with adapter mechanism)
- Thin or standard base film
- Thru path footage – 11 feet total



LEVITRON ADJUSTABLE AIR BEARING

GENERAL

Until the present time, the drying of coated stock material has been plagued by the necessity of avoiding mechanical contact with the coated surface while transporting the material during the drying cycle. This problem has been overcome in the past by the use of festoon and belt dryers, as well as other systems but no device yet developed avoids all contact with material being dryed. Moreover these systems require considerable factory space.

The [redacted] air bearing permits the coating of both sides of material prior to drying and also multiple coating without interstage drying. Considerable space is saved in comparison with conventional techniques since "nests" of air bearings allow close folding and redirection of coated materials while applying controlled high velocity impingement drying.

STAT

SPECIFICATIONS

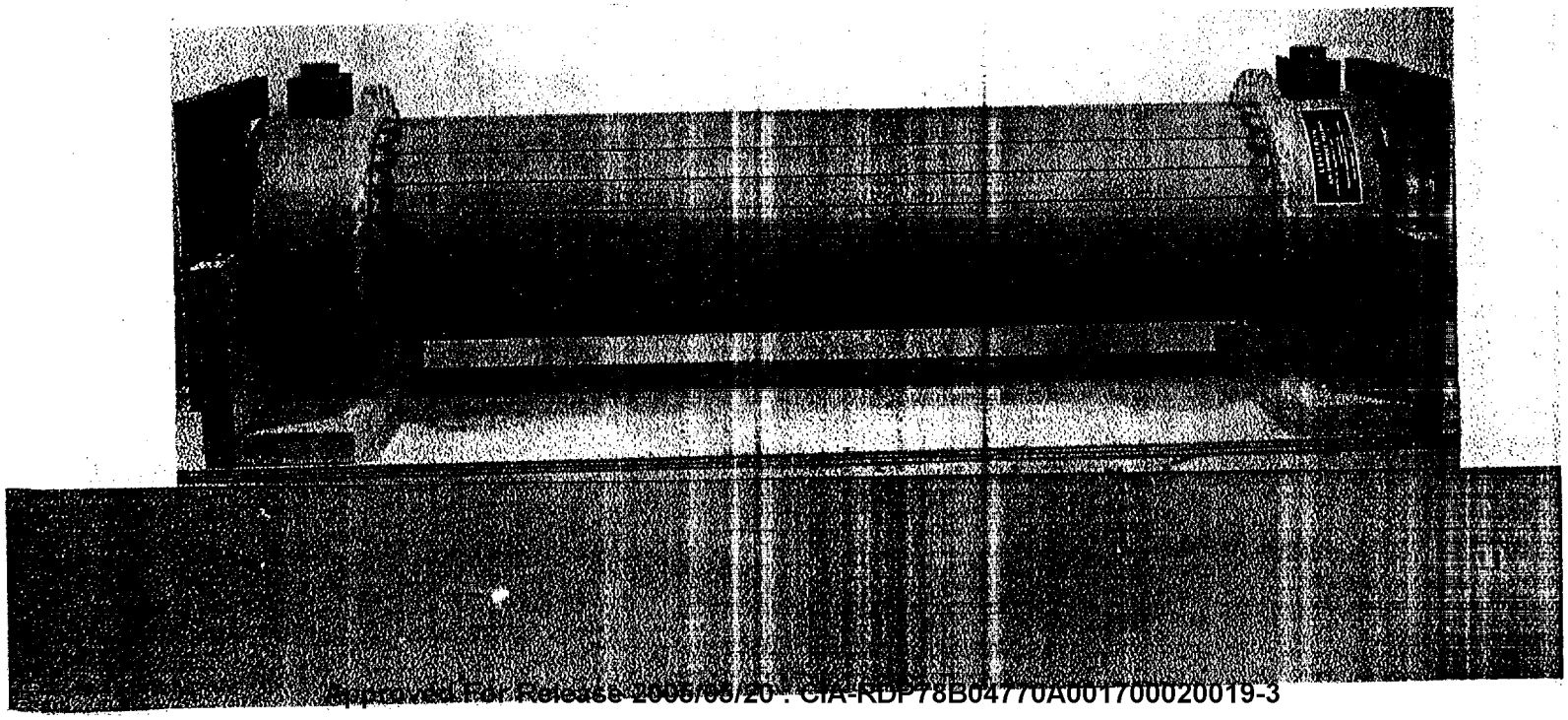
In this principle the web material rides on and is transported by a cushion of air. The air cushions are introduced into the LEVITRON system through stationary bearings.

These types of bearings consist of a cylindrical member and two spaced apart flange members which can be adjusted for varying widths. The cylindrical member has slotted openings through which the air supply is distributed, thus forming the support cushion. The spaced flange members are provided with relief valves for "bleeding off" excess pressure when the required riding height of the strip material has been reached. These bleed-off channels are located in the flange members and compensate for small variations in air pressure, which ensures that critical pressure regulation is unnecessary.

LEVITRON air bearings are manufactured by [redacted] in sizes ranging from 16mm to 54 inches in width, with load capacities from fractional ounce to over 32 ounces per linear inch.

STAT

Air bearing power needs vary. Low CFM is normally used for transporting and handling of delicate and/or coated material. High CFM is utilized when the bearings are used in high speed drying applications where rapid drying and breakdown of the paper's laminar air layer is desired. Pressure and CFM requirements vary in direct relationship to bearing diameter and web tension capacity as well as the desired application.



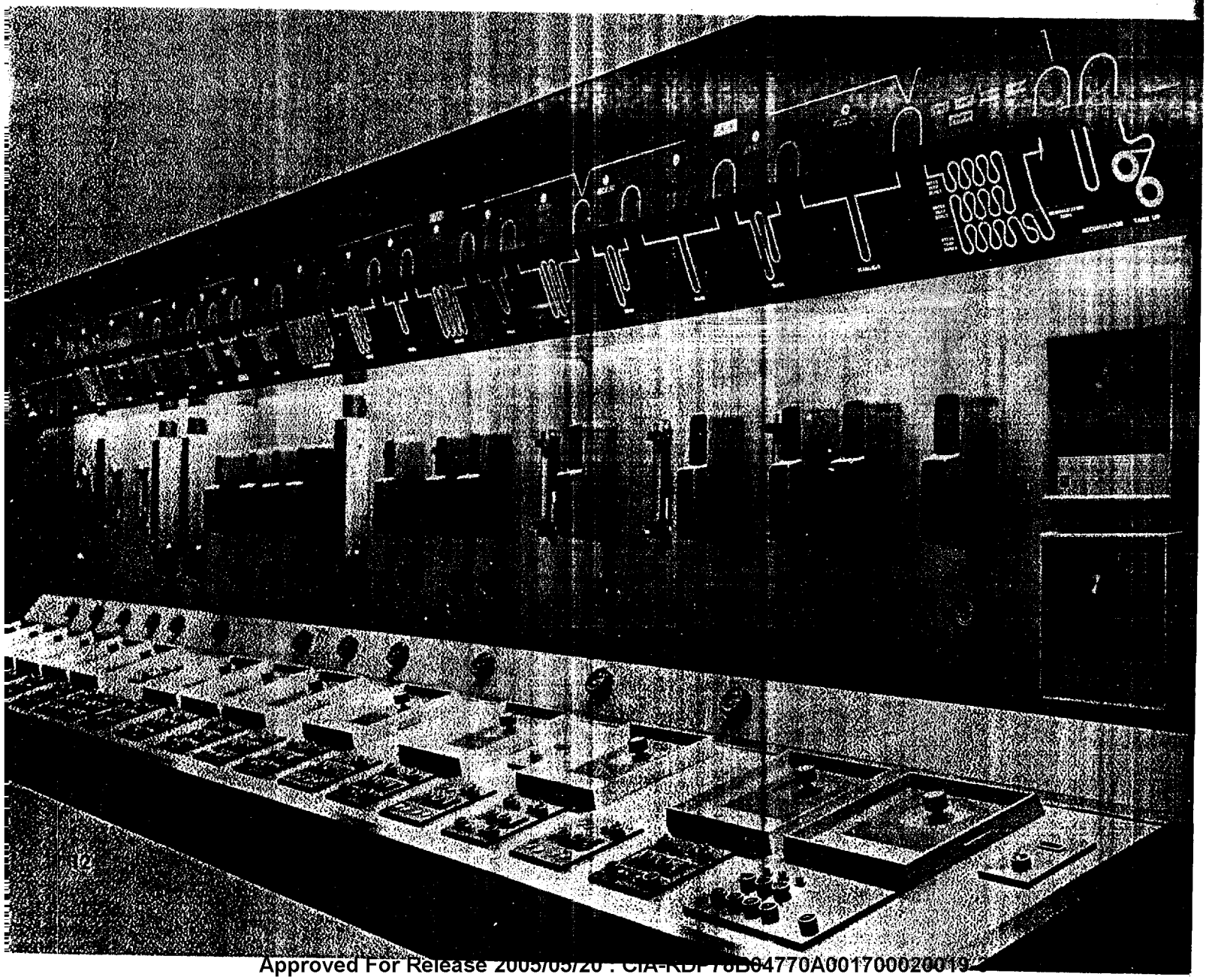
CONTROL CONSOLE

GENERAL

This unit custom designed for a government agency requesting the incorporation of the following specifications.

SPECIFICATIONS

- Replenishment flow meter control
- Film type and path lay-out display
- P.A. system
- Liquid level indicators
- Film condition indicators
- Precision transport control
- Independent temperature control
- Pump control stations



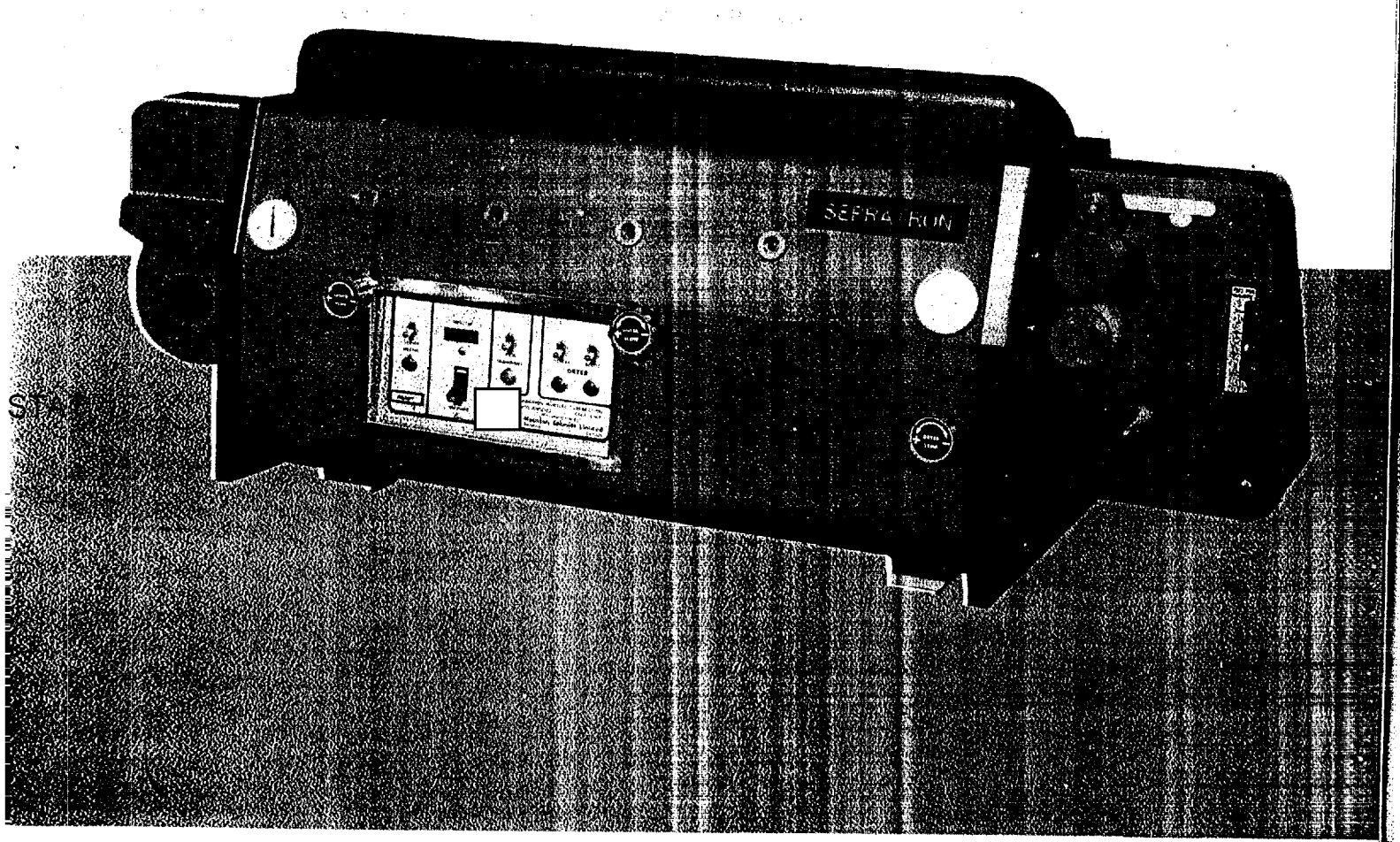
RESEARCH SEPRATRON - HORIZONTAL PATH

GENERAL

This working model was designed, engineered and manufactured to develop the SEPRATRON straight line principle of film processing.

This unit is one of three types made by our Research and Development Department, and as a result of this development the SEPRATRON straight path process was patented. Mass production of a table type processor is now being undertaken and the unit is being marketed

STAT



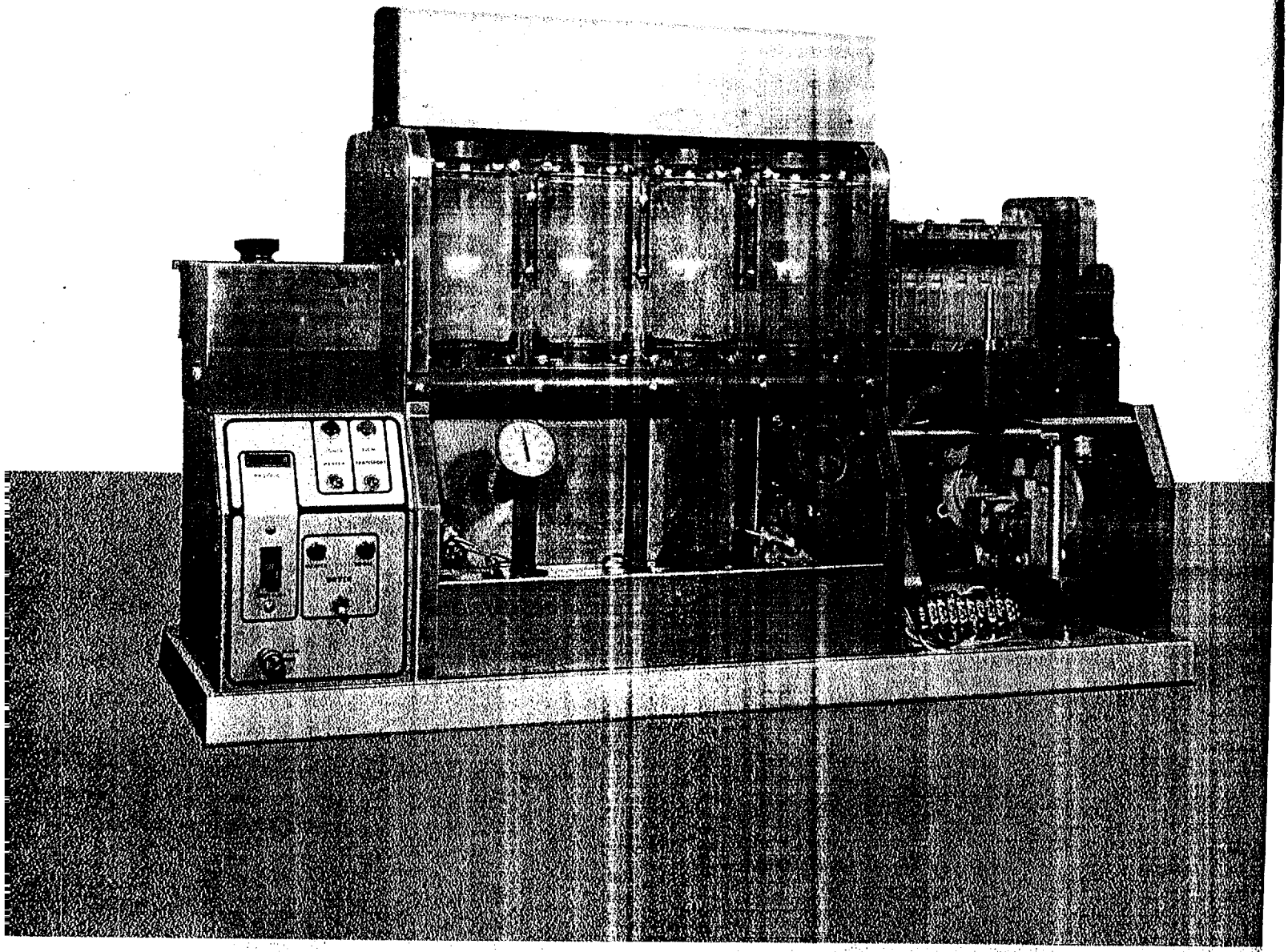
STAT

RESEARCH SEPRATRON-VERTICAL PATH

GENERAL

This working model was designed, engineered and manufactured to utilize the SEPRATRON straight line principle of film processing in a vertical path.

The special feature of this unit was to take the film from cassette or magazine and process, dry and automatically rewind the film into the original magazine.



[redacted]

STAT

[redacted]

MANUFACTURERS OF

FILM PROCESSING EQUIPMENT

FILM AND PAPER HANDLING SYSTEMS

ELECTRONIC DRYERS

ELECTROMECHANICAL DEVICES

RESEARCH AND DEVELOPMENT
SERVICES FOR INDUSTRY

STAT

[redacted]